IN THE DRAWINGS

The attached sheets of drawings include formal versions of FIGS. 1-9. These sheets, which include FIGS. 1-9, replace the original sheets including FIGS. 1-9.

Attachment: Replacement Sheets

REMARKS

Claims 8-18 and 30-35 are pending in the application.

Claims 1-7 and 19-29 are cancelled.

Claims 8, 9, 12 and 18 are amended.

Claims 30-35 are added.

No new matter is added.

Applicants request reconsideration and allowance of the claims in light of the amendments above and remarks below.

Claim Amendments

Support for amendments to claim 8 can be found at, for example, page 12, lines 5-8; page 14, lines 22-page 15-12; page 17, line 23 and in FIGS. 5a and 5b of the application as originally filed.

Support for new claim 30 can be found at, for example, claim 2 as originally presented.

Support for new claim 31 can be found at, for example, claim 5 as originally presented.

Support for new claim 32 can be found at, for example, claim 6 as originally presented.

Support for new claims 33 and 34 can be found at, for example, claim 7 as originally presented.

Support for new claim 35 can be found at, for example, page 3, lines 15-19 of the application as originally filed.

Drawing Objections

New drawings in compliance with 37 C.F.R. §1.121(d) are required in this application because the drawings are informal.

Applicants hereby provide formal versions of FIGS. 1-9 as originally filed. Withdrawal of the objection to FIGS. 1-9 is requested.

Claim Rejections - 35 U.S.C. § 112

Claims 9, 12 and 18 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, claims 9 and 18 are rejected because there is insufficient antecedent basis for the term "said release layer." Applicants hereby amend claims 9 and 18 to recite "*a* release layer." (*emphasis added*)

Claim 12 is rejected because the term "e.g." makes it unclear whether the limitation(s) following the terms are part of the claimed invention. Applicants hereby amend claim 12 to recite "wherein said object (18) *is a* reflection or transmission monolayer, bilayer or multilayer." (*emphasis added*)

In view of the amendments discussed above, claims 9, 12 and 18 are believed to fully comply with the definiteness requirement of 35 USC § 112, second paragraph. Withdrawal of the rejection of claims 9, 12 and 18 is requested.

Claim Rejections - 35 U.S.C. § 102

Claims 8 and 12 are rejected under 35 U.S.C. § 102(b) as being anticipated by Richards, U.S. Patent No. 5,855,966 (hereinafter "Richards"). Applicants respectfully traverse this rejection.

Claim 8, as amended, is directed to a replication method for producing a smooth object (18, 20) having a low surface roughness, comprising the steps of:

> producing a replication master (10) by:
>
> forming said master (10) such as to have a desired external surface shape which at least partially corresponds to a counterform of a surface of an object (18, 20) to be produced by replication;
>
> treating said external surface of said master (10) to obtain a predetermined surface roughness value; and
>
> **coating at least a part of said master (10) with a smoothening layer (16) made of a soluble polymer material** having a flowability such that the top surface of said smoothening layer displays a smaller roughness than the surface on which it is formed;
>
> coating at least a part of said smoothening layer (16) on said master (10) with an object material such that the surface of said object (18, 20) corresponds to a counterform of said master (10); and
>
> releasing said object (18, 20) from said master (10). **(emphasis added)**

Richards fails to teach or suggest at least the above-emphasized features now recited in claim 8.

For example, Richards teaches the use of coatings 14 made from metal such as tin or copper-molybdenum alloy. See, e.g., Richards at column 2, line 66; column 3, line 2; and column 3, line 36. Because Richards only teaches the use of coatings 14 made from metal such as tin or copper-molybdenum alloy, Richards does not teach "coating at least a part of

said master (10) with a smoothening layer (16) made of a soluble polymer material" as recited in claim 8.

For at least the reasons presented above, claim 8 is not anticipated by Richards, nor would it be obvious to form the coating 14 from a soluble polymer material because the coating 14 must be made of an exceptionally hard, oxidized material. *See* Richards at column 4, lines 12-33. Such materials, however, are not "soluble" within the context of the present application because they cannot be dissolved by harmless chemical solvents like water, acetone, etc. Rather, such materials can only be dissolved by, for example, an aggressive acid which, however, will necessarily attack the object to be produced as well as the net mold shape tool 10 itself. Thus, to modify Richards in such a manner as to form the coating 14 from a soluble polymer material would render the net mold shape tool 10 of Richards unsatisfactory for its intended purpose and would not be obvious.

Claim 12 depends from claim 8 and, therefore, is not anticipated by Richards at least by virtue of its dependence from claim 8.

Claim Rejections - 35 U.S.C. § 103

Claims 9-11 and 15-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Richards in view of U.S. Patent No. 5,505,808 to Hallman et al. (hereinafter "Hallman"). Applicants respectfully traverse this rejection.

Claims 9-11 and 15-18 depend from claim 8 and, therefore, include each and every element recited in claim 8. As shown above, claim 8 is not anticipated by Richards. Hallman does not cure the deficiency of Richards relative to claim 8. Therefore, claims 9-11 and 15-18 are not rendered obvious by the combination of Richards in view of Hallman at least by virtue of their dependence from claim 8.

Further, the Office Action rejects claim 9 by asserting that one of ordinary skill in the art would have found it obvious "to have dissolved the ... [coating 14 of Richards] of Richards with a solvent because, as taught by Hallman et al., this effectively releases the object from the master (col. 5, lines 9-21)." Applicants respectfully disagree.

Richards describes that the material selected for the coating 14 "must be chosen with a melting point which is, of course, less than the melting point of the material of the net shape mold tool 10." *See* Richards at column 4, lines 12-14. Richards also teaches that, when molding is to be performed with the coating 14 in place, the coating is to be oxidized to achieve a hardness approaching that of the net mold shape tool 10. *See* Richards at column 2, lines 56-67 and column 4, lines 23-33. Thus, According to Richards, the coating 14 can only

remain on the net mold shape tool 10 when it is made from an exceptionally hard, oxidized material. Such materials, however, are not "soluble" within the context of the present application (i.e., they cannot be dissolved by harmless chemical solvents like water, acetone, etc.). One of ordinary skill in the art understands that the hard, oxidized material forming the coating 14 of Richards can only be dissolved by, for example, an aggressive acid which, however, will necessarily attack the object to be produced as well as the net mold shape tool 10 itself and would therefore render the entire method proposed by Richards useless.

To summarize, in Richards, the coating 14 must be made from oxidized metal in order to become exceptionally hard which also means that is has no reasonable solubility in the sense that it cannot be dissolved by a harmless solvent which leaves the molded object and the net mold shape tool 10 undamaged. Apart from the fact that Richards on the one hand and Hallman on the other hand deal with completely different technical fields (Hallman discusses how to deposit an inorganic layer on an organic layer, but has nothing to do with molding, replication, etc., as discussed in Richards) their teachings therefore contradict each other. The coating 14 of Richards must be exceptionally hard for molding purposes, whereas Hallman only requires soft release layers that can be removed by water. *See, e.g.,* Hallman at column 4, lines 14-21.

Even if one of ordinary skill in the art modifies Richards with the technically distant teachings of Hallman as proffered by the Office Action, one of ordinary skill in the art would not make the coating 14 of Richards from a soluble material, let alone from a soluble polymer material because such a choice would contradict the explicit requirement that the coating 14 of Richards must be at least as hard as the net mold shape tool 10.

Furthermore, it has to be emphasized that Richards does not even mention the possibility, let alone the necessity, to release the net mold shape tool 10 from the object to be produced (i.e., the molded object). This is apparently due to the fact that Richards focuses on molding *glass optics* where there is apparently no problem of objects sticking to the net mold shape tool 10. If there is a problem of objects sticking to the net mold shape tool 10, the Office Action fails to objectively establish the existence of such a problem.

For at least these additional reasons, claim 9 is not rendered obvious by the combination of Richards in view of Hallman.

Claims 13 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Richards in view of U.S. Patent App. Pub. No. 2002/0145740 to Meeks (hereinafter "Meeks").

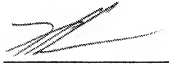
Claims 13 and 14 depend from claim 8 and, therefore, include each and every element recited in claim 8. As shown above, claim 8 is not anticipated by Richards. Meeks does not cure the deficiency of Richards relative to claim 8. Therefore, claims 13 and 14 are not rendered obvious by the combination of Richards in view of Meeks at least by virtue of their dependence from claim 8.

CONCLUSION

The examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

MARGER JOHNSON & McCOLLOM, P.C.



Kurt Eaton
Reg. No. 51,640

Customer No. 20575

MARGER JOHNSON & McCOLLOM, P.C.
210 SW Morrison Street, Suite 400
Portland, OR 97204
503-222-3613